

In the Claims:

Please amend the claims as follows. The following listing of claims replaces all previous listings.

1 – 8 (Cancelled).

9. (Currently Amended) A method comprising:

creating a root application node of a descriptor tree, responsive to a user initiating a rich internet application (RIA) defined using procedural code and declarative code;

generating a plurality of descriptor nodes for said descriptor tree, wherein each of said plurality describes an interface element currently instantiated and visible to said user on a currently visible pane of said RIA;

responsive to said user navigating to a subsequent pane of said RIA, constructing a plurality of stacked descriptor nodes for said descriptor tree, wherein each of said plurality of stacked descriptor nodes describes said interface element not instantiated and invisible to said user on said currently visible pane of said RIA and associated with said subsequent pane; and

creating a detail object from each one of:

said plurality of descriptor nodes[[:]]₁ and

said plurality of stacked descriptor nodes; and

rendering said interface element using a corresponding detail object.

10. (Previously Presented) The method of claim 9 wherein said generating comprises:

generating one of said plurality of descriptor nodes for a container of said interface element not instantiated and invisible to said user on said currently visible pane of said RIA.

11. (Original) The method of claim 9 wherein said association between said subsequent pane and said plurality of stacked descriptor nodes comprises one of:

a direct link;

an ordinal relationship;

a statistical relationship; and a positional relationship.

12. (Previously Presented) A computer program product having a computer readable medium with computer program logic recorded thereon, said computer program product comprising:

code for initializing of a rich internet application (RIA), wherein initializing comprises instantiating at least one visible element in said RIA and deferring instantiation of unseen ones of a plurality of stacked elements in said RIA;

code for generating a descriptor tree having a plurality of descriptor nodes, wherein each of said plurality of descriptor nodes describes a plurality of instantiated and visible interface elements of said RIA;

code for creating one or more stacked descriptor nodes in said descriptor tree describing said unseen ones of said plurality of stacked interface elements responsive to a user navigating to said unseen ones, wherein said unseen ones are not instantiated at said starting; and

code for rendering said plurality of visible interface elements and said unseen ones using corresponding ones of:

said plurality of descriptor nodes; and

said one or more stacked descriptor nodes.

13. (Previously Presented) The computer program product of claim 12 further comprising:

code for converting said plurality of descriptor nodes into a plurality of detail objects;

code for converting said one or more stacked descriptor nodes into one or more stacked

detail objects, wherein said plurality of instantiated and visible interface elements and said unseen ones are rendered directly using said plurality of detail objects and said one or more stacked detail objects.

14. (Original) The computer program product of claim 12 wherein each one of said plurality of descriptor nodes and said one or more stacked descriptor nodes contains a software method for generating each its child nodes.

15. (Previously Presented) The computer program product of claim 12 further comprising:

code for downloading bytecode representing said RIA to a computer of said user responsive to said initializing of said RIA, wherein said code for generating and said code for creating use said bytecode.

16. (Previously Presented) The computer program product of claim 13 further comprising:

code for storing as a plurality of stored nodes each of:

said plurality of descriptor nodes;

said one or more stacked descriptor nodes; said plurality of detail objects; and

said one or more stacked detail objects; and

code for re-rendering each of said plurality of instantiated and visible interface elements and said one or more stacked interface elements from said plurality of stored nodes.

17. (Original) The computer program product of claim 12 wherein said one or more stacked descriptor nodes created has a navigational relationship with a particular one of said one or more stacked interface elements to which said user navigates.

18. (Original) The computer program product of claim 17 wherein said navigational relationship comprises one or more of:

a direct link;

an ordinal relationship;

a statistical relationship; and a positional relationship.

19. (Currently Amended) The computer program product of claim 12 further comprising:
~~code for~~ code for creating select ones of said one or more stacked descriptor nodes in said descriptor tree responsive to starting said RIA.

20 – 27. (Cancelled).

28. (Currently Amended) A computer program product having a computer readable medium with computer program code recorded thereon, said computer program product comprising:

program code for accessing executable code of a rich internet application, the executable code comprising code for instantiating a plurality of objects, each object for rendering a corresponding interface element of the rich internet application;

program code for creating a descriptor tree comprising a plurality of descriptor nodes, each node identifying an object or container of the application;

program code for identifying a subset of the plurality of objects in the executable code, the subset comprising fewer than all of the plurality of objects, wherein identifying the subset comprises (i) using the descriptor tree to identify a node whose object is for rendering an interface element that is not visible in the initial view and (ii) excluding the object from the subset of objects;

program code for instantiating the objects in the subset;

program code for rendering an initial view of the application using the instantiated objects;

program code for instantiating at least one other object of the plurality of objects in response to user interaction with an interface element of the initial view; and

program code for rendering another view of the application using the instantiated at least one other object.

29. (Cancelled).

30. (Currently Amended) The computer program product set forth in claim 28 ~~29~~, wherein using the descriptor tree to identify a node whose object is for rendering an interface element that is not visible in the initial view comprises:

determining if the node identifies itself as corresponding to a stacked navigation object.

31. (Currently Amended) The computer program product set forth in claim 28 ~~29~~, wherein creating a descriptor tree comprising identifying a node whose object is for rendering an interface element that is not visible in the initial view as a hidden node; and

wherein objects associated with hidden nodes are excluded from the subset.

32. (New) A method comprising:

accessing code of a rich internet application from a computer-readable medium;

generating a descriptor tree based on the accessed code, the descriptor tree having a plurality of descriptor nodes corresponding to respective elements of the rich internet application, at least some of the descriptor nodes identifying interface elements of the rich internet application intended to be instantiated and visible at a beginning of the rich internet application;

creating at least one hidden descriptor node in the descriptor tree, the hidden node identifying an interface element not intended to be instantiated or visible at the beginning of the rich internet application;

instantiating and rendering a plurality of interface elements at the beginning of the rich internet application based on corresponding non-hidden nodes in the descriptor tree;

responsive to data identifying navigation in the rich internet application, instantiating and rendering a second interface element based on a corresponding hidden descriptor node,

wherein instantiation of the second interface element is deferred until the navigation occurs.

33. (New) The method set forth in claim 32, wherein each of the descriptor nodes contain a software method for generating each of its child nodes, if any.

34. (New) The method set forth in claim 32, further comprising
prior to accessing the executable code, downloading the code.